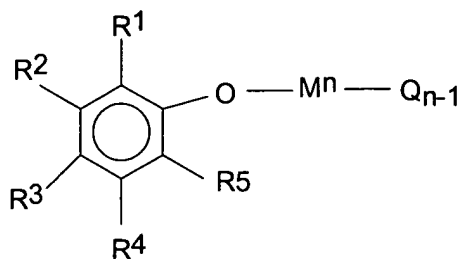


# IN THE CLAIMS

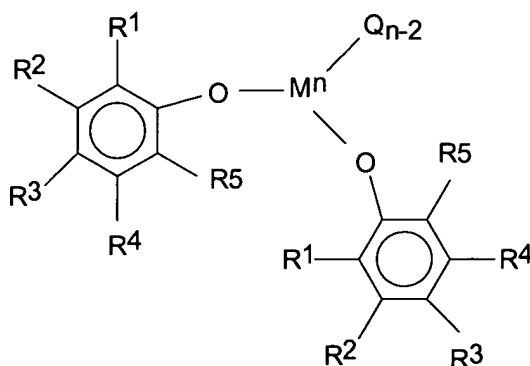
Cancel Claims 1-23. Enter new Claims 24-41 as follows.

24. (New) A supported catalyst system comprising an iminophenoxide Group 4 catalyst compound, and a supported activator, wherein:

- a) the iminophenoxide Group 4 catalyst compound is represented by the formulae:



or



where  $\text{R}^1$  to  $\text{R}^4$  are independently selected from hydrogen,  $\text{C}_1$  to  $\text{C}_{10}$  heteroatom containing groups, and a  $\text{C}_1$  to  $\text{C}_{20}$  alkyl groups;

$\text{R}^5$  is an imine group bound to M;

O is oxygen;

M is a Group 4 metal;

n is the valence state of M; and

Q is an anionic ligand; and wherein


- b) the supported activator is a carrier material combined with an activator, the activator represented by the formula:



wherein each R is independently an alkyl group or a group represented by the formula ArHal, where ArHal is a halogenated C<sub>6</sub> aromatic or higher carbon number polycyclic aromatic hydrocarbon or aromatic ring assembly; and n is an integer from 1 to 3.

25. (New) The supported catalyst system of Claim 24, wherein the iminophenoxide Group 4 catalyst compound is selected from:

bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-ethyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*t*-butyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-hexyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-phenyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dichloride;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dipivalate;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)titanium(IV) dipivalate;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) di(bis(dimethylamide));  
bis(*N*-*iso*-propyl-3,5-di-*t*-amylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-*t*-octylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)titanium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)hafnium(IV) dibenzyl;  
bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;

bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dichloride;  
bis(*N*-hexyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;  
bis(*N*-phenyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-(1'-methylcyclohexyl)salicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3-triphenylmethylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-trimethylsilylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3-(phenyl)salicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3-(2',6'-di-*iso*-propylphenyl)salicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3-(2',6'-di-phenylphenyl)salicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3-*t*-butyl-5-methoxysalicylimino)zirconium(IV) dibenzyl; and derivatives thereof.

26. (New) The supported catalyst system of Claim 24, wherein the activator is tris(pentafluorophenyl)aluminum.
27. (New) The supported catalyst system of Claim 24, wherein the support material contains surface hydroxyl groups.
28. (New) The supported catalyst system of Claim 24, wherein the aluminum atom of the activator is covalently bonded to the support material.
29. (New) The supported catalyst system of Claim 24, wherein the iminophenoxide Group 4 catalyst compound is selected from: bis(4,6-di-*t*-butyl-2-*iso*-butyliminophenoxy)zirconium dibenzyl, bis(4,6-di-*t*-butyl-2-benzyliminophenoxy)zirconium dibenzyl, and derivatives thereof.
30. (New) The supported catalyst system of Claim 24, wherein the supported activator and iminophenoxide Group 4 catalyst compound are combined in a mole ratio (Al:Group 4 metal) of from 0.3:1 to 3:1.

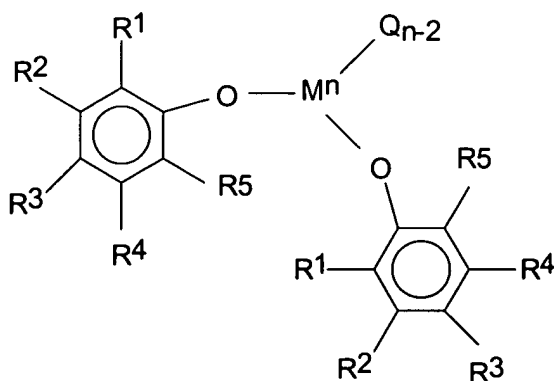
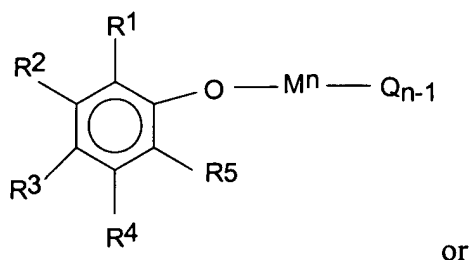
31. (New) A method of preparing a catalyst system comprising:

- a) contacting an activator with a carrier comprising surface hydroxyl groups in a hydrocarbon diluent to form a supported activator; wherein supported activator comprises activator covalently bound to the carrier;
- b) contacting the supported activator with an iminophenoxide Group 4 catalyst compound to form the catalyst system.

32. (New) The method of Claim 31, wherein the activator is added in a molar excess relative to the amount of surface hydroxyl groups of the carrier.

33. (New) The method of Claim 31, wherein the carrier is calcined to up to 800°C prior to contacting with the activator.

34. (New) The method of Claim 31, wherein the iminophenoxide Group 4 catalyst compound is represented by the formulae:



where  $R^1$  to  $R^4$  are independently selected from hydrogen,  $C_1$  to  $C_{10}$  heteroatom containing groups, and a  $C_1$  to  $C_{20}$  alkyl groups;

$R^5$  is an imine group bound to M;

O is oxygen;

M is a Group 4 metal;

n is the valence state of M; and

Q is an anionic ligand.

35. (New) The method of Claim 31, wherein the supported activator is a carrier material combined with an activator, the activator represented by the formula:



wherein each R is independently an alkyl group or a group represented by the formula ArHal, where ArHal is a halogenated  $C_6$  aromatic or higher carbon number polycyclic aromatic hydrocarbon or aromatic ring assembly; and n is an integer from 1 to 3.

36. (New) The method of Claim 31, wherein the iminophenoxide Group 4 catalyst compound is selected from:

bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-ethyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*iso*-propyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-*t*-butyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-hexyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-phenyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dichloride;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dipivalate;  
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)titanium(IV) dipivalate;

bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) di(bis(dimethylamide));  
 bis(*N*-*iso*-propyl-3,5-di-*t*-amylsalicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-*iso*-propyl-3,5-di-*t*-octylsalicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)titanium(IV) dibenzyl;  
 bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)hafnium(IV) dibenzyl;  
 bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dichloride;  
 bis(*N*-hexyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-phenyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-*iso*-propyl-3,5-di-(1'-methylcyclohexyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-benzyl-3-*t*-butylsalicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-benzyl-3-triphenylmethylsalicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-*iso*-propyl-3,5-di-trimethylsilylsalicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-*iso*-propyl-3-(phenyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-benzyl-3-(2',6'-di-*iso*-propylphenyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-benzyl-3-(2',6'-di-phenylphenyl)salicylimino)zirconium(IV) dibenzyl;  
 bis(*N*-benzyl-3-*t*-butyl-5-methoxysalicylimino)zirconium(IV) dibenzyl; and derivatives thereof.

37. (New) The method of Claim 31, wherein the activator is tris(pentafluorophenyl)aluminum.

38. (New) The method of Claim 31, wherein the support material contains surface hydroxyl groups.

39. (New) The method of Claim 31, wherein the aluminum atom of the activator is covalently bonded to the support material.

40. (New) The method of Claim 31, wherein the iminophenoxide Group 4 catalyst compound is selected from: bis(4,6-di-*t*-butyl-2-*iso*-butyliminophenoxy)zirconium

dibenzyl, bis(4,6-di-t-butyl-2-benzyliminophenoxy)zirconium dibenzyl, and derivatives thereof.

41. (New) The method of Claim 31, wherein the supported activator and iminophenoxide Group 4 catalyst compound are combined in a mole ratio (Al:Group 4 metal) of from 0.3:1 to 3:1.
-